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New Plants from Wyoming.—I.

By Aven Nelson.

(Plate 341.)

In my work in the Red Desert of Wyoming during part of the season of 1897 a number of rather unusual and interesting plant forms were secured and some plant ranges were greatly extended. To me one of the most interesting finds was a perfectly yellow flowered *Oreocarya*, which may be described as follows:

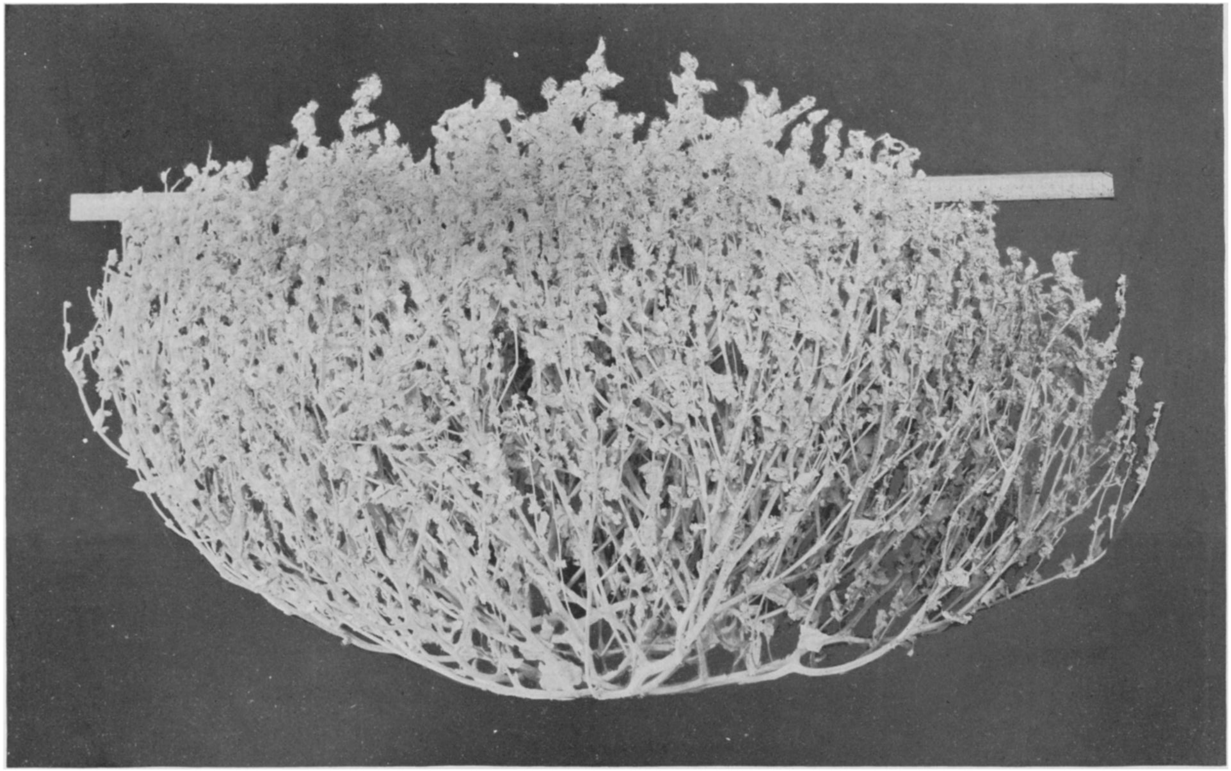
Oreocarya flava.

Perennial, tufted from a branched, lignescent caudex, 1–2.5 dm. high: stems numerous, simple, white pubescent below, fulvously hirsute upwards: leaves numerous, basal ones scale-like and densely white hirsute, lower stem leaves somewhat crowded, linear to narowly oblanceolate-petiolate, appressed pubescent or hirtellous, upper leaves slightly broader with broader base, 3–5 cm. long: inflorescence crowded, glomerate spicate; calyx yellow-hirsute, lobes linear, half the length of the corolla-tube; corolla a decided yellow, tube about 12 mm. long, lobes suborbicular, 3–4 mm. in diameter, crests conspicuous, emarginate; essential organs strikingly dimorphic; stamens inserted just below the throat or just below the middle of the tube, anthers linear; style the length of the tube or half the length; mature nutlets not seen but seemingly smooth, ovate, one or more sometimes smaller and possibly not maturing.

A remarkably distinct species, not comparable to any form known to the writer. *Krynitzkia leucophaea* Gray may be suggested by it but from that it is more than distinct. In the possession of decidedly yellow flowers it probably stands alone. A beautiful and striking plant as observed on the otherwise often naked hillsides in the Red Desert. Two collections were secured June 1, 1897, one at Point of Rocks, the other at Bitter Creek Station. These differ in that all the specimens in one have long stamens, and in the other they are all short.

Type specimen in Herb. Univ. of Wyoming, no. 3074.

In recent years there has been much seeking after plants that



ATRIPLEX VOLUTANS NELSON.

would thrive in soil heavily impregnated with alkali. A number of imported species have been highly recommended and have been tried with varying success. Since those that give greatest promise are species of *Atriplex* it is interesting to find some native species in this genus that look as if they might prove profitable, or at least worthy of trial. These species, one a perennial and the other an annual, both inhabit saline basins or banks even to places actually encrusted with the prevailing salt. They may be named and described as follows:

ATRIPLEX PABULARIS.

Dioecious, perennial, persisting by the very short woody base which branches freely at or just above the surface of the ground; the annual branches numerous and somewhat fascicled, strict and usually but slightly branched, 2–5 dm. high; entire plant with closely appressed white scurf: leaves oblong to almost linear, obtuse, cuneate at base, sessile or very short-petioled, 1–5 dm. long, 1–12 mm. broad: staminate panicle leafy, dense and short (5–15 cm.): pistillate panicle leafy, dense and long (more than half the length of the stem): fruit uniformly triangular-cuneate, decidedly compressed, 4–5 mm. long, almost as broad at summit: bracts united, marginless, the somewhat truncate summit three-toothed, the middle one slightly longer and the lateral ones bearing an inconspicuous rudimentary one; the teeth of the otherwise closely appressed bracts slightly divergent, their sides perfectly smooth, *i. e.*, not crested nor muricate.

From the Desert of Wyoming where it is found in abundance on the highly saline soil of the low flats immediately adjacent to such streams as Bitter Creek and Salt-Wells Creek. It endures the strongest alkali soil, making a dense growth and a large amount of forage which is highly prized as sheep fodder.

In general appearance it most resembles *A. Nuttallii* S. Wats., but is easily distinguished by its less woody base, its denser growth, its more strictly erect habit, its habitat and especially by the very distinct character of its fruiting bracts.

Numbers 3712 and 4429 from Point of Rocks, Wyo., 1897.

ATRIPLEX VOLUTANS.

Annual, silvery-scurfy throughout, divaricately and most intricately branched; branches ascending; the plant at maturity a compact, sub-spherical mass from two-thirds to more than a meter in diameter: tap-root single, slender, brittle at maturity when the plant becomes a "tumble-weed:" leaves comparatively thin, variable in shape, from broadly lanceolate to triangular, rarely subhastate or broadly cuneate at base, sometimes irregularly dentate, acute, obtuse or even toothed at apex, sessile or subsessile, 2–5 cm. long: pistillate flowers in axillary clusters: fruiting bracts pedicelled, indurated, united only to the foliaceous margin, irregularly sub-orbicular, 7–14 mm. wide, free margins variously toothed or lobed, the lobes of the opposing bracts not coinciding, the upper lateral usually larger; sides usually appendaged or often only one side giving a triangular appearance to the fruit, appendages frequently somewhat foliaceous and conspicuous; radicle superior. (Pl. 341.)

The species is more nearly related to *A. argentea* Nutt. than any other with which I am acquainted, and possibly has been confused with it. It may be distinguished from *A. argentea* by its habit and size and by its branching bracts. To confuse herbarium specimens of the two would not be difficult, but specimens in the field, never.

So far as my observation goes it is very local. I have observed it for several years past only in a large alkali basin on the Laramie Plains. It is very abundant on the low flats adjacent to some alkali lakes. It grows rapidly, matures in September, and by October most of the plants are free and rolling. I have seen it windrowed against the wire fences to more than the height of the fence, so that the later comers tumbled over and passed on to lodge in some ravine or against the next fence on the route.

The accompanying half-tone plate shows a characteristic specimen with a meter stick lying upon it, and is not unusual as regards size.

Type specimen in Herb. Univ. of Wyoming, no. 2796.

LUPINUS HUMICOLA.

Perrennial; rootstock branched, the low crowns covered with the scale-like dead petioles: stems several from each crown, simple, erect or ascending, 3–6 dm. high; finely but not densely appressed-pubescent throughout: leaflets 7–12, usually 10 or 11, oblong-oblanceolate, cuspidate-acute, 4–7 cm. long: petioles slender, elongated, radical 1.5–3 dm., cauline gradually shortened upward: stipules linear-lanceolate, villous: racemes terminal, dense, 1–2 dm. long, elongating in fruit: flowers blue, sub-verticillate, standard glabrous; bracts minute or wanting; pedicels 5–8 mm. long, stout in fruit: pods villous-pubescent, 2.5–4 cm. long, normally 6-seeded.

A good species, possibly somewhat local; abundant in the Laramie hills, where it has several times been collected and frequently observed. It has not been secured elsewhere in the State. It loves a moist soil, rich in humus; is not found on the open plain but in aspen or other thickets or even among sage-brush on the slopes where snowdrifts accumulate and lie late in the spring. It develops early, almost out of the snow-drifts, and begins to show its spikes of blue even before the aspens are in leaf.

Heretofore carelessly confused with *L. leucophyllus* Dougl. under which name I have distributed it as no. 151.

Type specimens in Herb. Univ. of Wyoming, no. 151, Laramie Hills, June 2, 1894, and no. 71, a well-fruited specimen from the same locality by Mr. Elias Nelson, who first called my attention to the marked differences between these specimens and *L. leucophyllus*.

LESQUERELLA CURVIPES.

Perennial: stems tufted on the expanded crown of the single, long, slender, woody root, numerous (30–60), nearly simple, spreading-assurgent, 1½–3 dm. long; finely stellate pubescent throughout: leaves entire, cauline, linear to oblanceolate, tapering gradually into the somewhat margined petiole, 3–6 cm. in length, radical oblanceolate to obovate with margined petioles: flowers unknown: pods ovate, acute, distinctly compressed at summit, gibbously convex towards the base, about 8 mm. long, the slender style two-thirds as long: slender pedicels divaricate, 1–2 cm. long, doubly curved, the proximal part upward, the distal downward with ascending tip bearing the erect pod: seeds two in each cell, rarely one or three.

It most resembles *L. montana* Nutt. from which it differs in its larger size, more numerous stems, its somewhat veiny leaves, larger, compressed pod and fewer seeds.

Collected in the northern Big Horn Mountains, on the Dome Lake road, at about 9000 ft., July 19, 1896, no. 2424.

LESQUERELLA ROSULATA.

Annual, or possibly more enduring, finely stellate pubescent throughout: stems few, 1–2 dm. long, ascending, floriferous one-half their length: leaves mostly radical, forming a compact rosulate cluster on the crown of the short tap-root, outer ones large, blade 3 cm. long on petioles 3–6 cm., diminishing in size and length of petiole towards the center, oval to oblong, entire or tooth-angled, some of the smaller sub-hastate, cauline only one or two, oblong, 2–3 cm., petioled: pods oval to elliptic, sub-acute or more usually obtuse, 5–6 mm. long, slender style as long or longer: pedicels ascending, curved, about 1 cm. long.

Perhaps most closely allied to *L. montana* Wats. by its fruit, but separated from it by its conspicuous rosette of basal leaves, its fewer stems, its few, long-petioled cauline leaves, its smaller pod and its later development. *L. montana* matures its fruit in June; this species in late August.

Centennial Valley, on loose sandy soil, August 18, 1896.